CLAIMS

1. A heat exchanger comprising a pair of headers extending upward or downward and spaced apart from each other, a plurality of refrigerant tubes arranged one above another in parallel at a spacing between the pair of headers and having opposite ends joined to the respective headers, fins arranged between respective adjacent pairs of refrigerant tubes, and a liquid receiver fixed to one of the headers,

a receiver connecting block being fixed to a peripheral wall of the receiver-fixed header and having channels for causing interior of the receiver-fixed header to communicate with interior of the liquid receiver therethrough, the liquid receiver being fixed to the connecting block, the connecting block and the liquid receiver being provided with respective fixing portions having respective contact faces in intimate contact with each other, the liquid receiver being fixed to the connecting block with the contact faces of the fixing portions in intimate contact with each other, a seal member being liquid-tightly provided around respective outer peripheral surfaces of both the fixing portions so as to cover a boundary between the contact faces of the fixing portion of the block and the fixing portion of the liquid receiver.

2. A heat exchanger according to claim 1 wherein the outer peripheral surfaces of the fixing portions of the block and the liquid receiver have respective contours of the same shape and the same size.

3. A heat exchanger according to claim 1 wherein the seal member covers the outer peripheral surfaces of the fixing

portion of the block and the fixing portion of the liquid receiver each over a length of at least 5 mm in the direction of thickness of the fixing portion.

4. A heat exchanger according to claim 1 wherein the seal member is tubular and has rubber elasticity, and the tubular seal member has an inner shape smaller than the contours of the outer peripheral surfaces of the fixing portions of the block and the liquid receiver and is fitted as elastically deformed around both the fixing portion of the block and the fixing portion of the liquid receiver in intimate contact with the outer peripheral surfaces of both the fixing portions by virtue of the elastic force of the tubular seal member itself.

5. A heat exchanger according to claim 4 wherein the tubular seal member is provided in an inner peripheral surface thereof with a plurality of annular seal grooves over the entire circumference thereof.

6. A heat exchanger according to claim 4 wherein the outer peripheral surfaces of the fixing portions of the block and the liquid receiver have respective contours of the same shape and the same size, are each in the form of a cylindrical surface and each have a circular contour, the tubular seal member being cylindrical, and assuming that the outside diameter of the fixing portions of the block and the liquid receiver is d and that the inside diameter of the tubular seal member to be fitted around the fixing portions is D, these diameters have the relationship of $0.7d < D < d$.

7. A heat exchanger according to claim 4 wherein the tubular seal member is made from a rubber selected from the group

consisting of silicone rubber, ethylene propylene rubber, butadiene-acrylonitrile rubber and hydrogenated butadiene-acrylonitrile rubber.

8. A heat exchanger according to claim 1 wherein the seal member comprises a thermally shrinkable tube.

9. A unit-type heat exchanger comprising a heat exchanger according to any one of claims 1 to 8 wherein the receiver-fixed header and the other header are internally divided at portions thereof at the same level to thereby provide a condenser portion having the function of a condenser and a supercooler portion positioned below the condenser portion and having the function of a supercooler, the receiver connecting block having channels permitting a refrigerant flowing out of the condenser portion to pass through interior of the liquid receiver and to flow into the supercooler portion.

10. A refrigeration cycle having a compressor, a condenser, an expansion valve and an evaporator, the condenser comprising a heat exchanger according to any one of claims 1 to 8.

11. A vehicle having installed therein the refrigeration cycle according to claim 10 as an air conditioner.

12. A refrigeration cycle comprising a compressor, a unit-type heat exchanger according to claim 9, an expansion valve and an evaporator.

13. A vehicle having installed therein the refrigeration cycle according to claim 12 as an air conditioner.

14. A process for fabricating a heat exchanger according to claim 1 including:

arranging a plurality of refrigerant tubes one above another in parallel at a spacing between a pair of headers extending upward or downward and spaced apart from each other, arranging fins between respective adjacent pairs of heat exchange tubes, providing a receiver connecting block for one of the headers and collectively brazing the resulting arrangement,

applying a volatile lubricant to an outer peripheral surface of at least one of a fixing portion of the block and a fixing portion of a liquid receiver and thereafter fitting a tubular seal member around the outer peripheral surface of the fixing portion having the lubricant applied thereto, and

fastening the liquid receiver to the block with contact faces of the fixing portions of the block and the liquid receiver in intimate contact with each other and thereafter shifting the tubular seal member to place the tubular seal member around both the fixing portions so as to cover a boundary between the contact faces of the fixing portions.

15. A refrigerant passage portion connecting structure for a refrigeration cycle comprising two blocks each having a channel communicating with a refrigerant passage portion of the refrigeration cycle, the two blocks having respective fixing portions and respective contact faces each provided on the fixing portion and to be positioned in intimate contact with each other, the channel having one end opened in the contact face, the two blocks being fastened together with the contact faces of their fixing portions in intimate contact with each other and with their channels communicating with each other, a seal member being liquid-tightly provided around outer

peripheral surfaces of the fixing portions of the two blocks so as to cover a boundary between the contact faces of the fixing portions.

16. A refrigerant passage portion connecting structure for a refrigeration cycle comprising a first block having a channel communicating with a refrigerant passage portion of the refrigeration cycle, a pipe having an end portion fittable into the channel of the first block and connectable to the first block, and a second block for fixing the pipe to the first block, the two blocks having respective fixing portions and respective contact faces each provided on the fixing portion and to be positioned in intimate contact with each other, the two blocks being fastened together with the contact faces of their fixing portions in intimate contact with each other and with the pipe end portion fitted in the channel of the first block, a seal member being liquid-tightly provided around outer peripheral surfaces of the fixing portions of the two blocks so as to cover a boundary between the contact faces of the fixing portions.

17. A refrigerant passage portion connecting structure for a refrigeration cycle according to claim 15 or 16 wherein the outer peripheral surfaces of the fixing portions of the two blocks have respective contours of the same shape and the same size.

18. A refrigerant passage portion connecting structure for a refrigeration cycle according to claim 15 or 16 wherein the seal member covers the outer peripheral surfaces of the fixing portions of the two blocks each over a length of at

least 5 mm in the direction of thickness of the fixing portion.

19. A refrigerant passage portion connecting structure for a refrigeration cycle according to claim 15 or 16 wherein the seal member is tubular and has rubber elasticity, and the tubular seal member has an inner shape smaller than the contours of the outer peripheral surfaces of the fixing portions of the two blocks and is fitted as elastically deformed around the fixing portions of the two blocks in intimate contact with the outer peripheral surfaces of the fixing portions by virtue of the elastic force of the tubular seal member itself.

20. A refrigerant passage portion connecting structure for a refrigeration cycle according to claim 19 wherein the tubular seal member is provided in an inner peripheral surface thereof with a plurality of annular seal grooves over the entire circumference thereof.

21. A refrigerant passage portion connecting structure for a refrigeration cycle according to claim 19 wherein the outer peripheral surfaces of the fixing portions of the two blocks have respective contours of the same shape and the same size, are each in the form of a cylindrical surface and each have a circular contour, the tubular seal member being cylindrical, and assuming that the outside diameter of the fixing portions of the two blocks is d and that the inside diameter of the tubular seal member to be fitted around the fixing portions is D, these diameters have the relationship of $0.7d < D < d$.

22. A refrigerant passage portion connecting structure for a refrigeration cycle according to claim 19 wherein the

tubular seal member is made from a rubber selected from the group consisting of silicone rubber, ethylene propylene rubber, butadiene-acrylonitrile rubber and hydrogenated butadiene-acrylonitrile rubber.

23. A refrigerant passage portion connecting structure for a refrigeration cycle according to claim 15 or 16 wherein the seal member comprises a thermally shrinkable tube.

24. A process for fabricating a refrigerant passage portion connecting structure for a refrigeration cycle according to claim 15 or 16 including:

applying a volatile lubricant to an outer peripheral surface of a fixing portion of at least one of two blocks and thereafter fitting a tubular seal member around the outer peripheral surface of the fixing portion having the lubricant applied thereto, and

fastening the two blocks together with contact faces of the fixing portions of the blocks in intimate contact with each other and thereafter shifting the tubular seal member to place the tubular seal member around both the fixing portions so as to cover a boundary between the contact faces of the fixing portions.